

In the Claims

1. **(currently amended)** A coating composition comprising

a1) a physically drying film forming binder resin or resins;
a2) a thermally cross linking film forming binder resin or binder resins;
a3) a radiation curable film forming binder resin or binder resins;
a4) an autoxidatively drying film forming binder resin or resins; or
a5) a combination of binder resins with at least two different crosslinking mechanisms~~mechanisms~~ selected from a1), a2), a3) or a4);

b) a polymer or copolymer levelling agent of formula (I) $\text{In}-[(\text{M})_x-(\text{E})_y]_n$ (I) obtained by nitroxyl mediated controlled free radical polymerisation wherein

In is the initiator fragment starting the polymerisation reaction;

M is at least one monomer selected from the group consisting of acrylic acid, methacrylic acid, acrylic acid (C₁-C₂₂)alkyl esters, acrylic acid (C₁-C₂₂)hydroxyalkyl esters, methacrylic acid (C₁-C₂₂)alkyl esters, methacrylic acid (C₁-C₂₂)hydroxyalkyl esters, acrylic acid (C₁-C₂₂)alkyl esters or methacrylic acid (C₁-C₂₂)alkyl esters which are substituted by amino, (C₁-C₂₂)alkylamino, (C₁-C₂₂)dialkylamino, -SO₃H, epoxy, fluoro, perfluoro or siloxane groups, styrene, substituted styrene, acrylamide and methacrylamide, N-mono(C₁-C₂₂)alkyl acrylamide, N,N-di(C₁-C₂₂)alkyl acrylamide, and a multifunctional monomer with two or more ethylenically unsaturated bonds;

provided that the amount of unsubstituted acrylic acid (C₁-C₂₂)alkyl esters or/and methacrylic acid (C₁-C₂₂)alkyl esters is more than 30 % by weight based on the weight of the total monomer mixture;

E is a group bearing at least one stable free nitroxyl radical, which is bound via the oxygen atom to the polymer or copolymer; or a group which results from a substitution or elimination reaction of the attached stable free nitroxyl radical;

x is the total number of monomer units, which is a number between 5 and 5000;

y is a number 1 or greater than 1 indicating the average number of end groups E attached to the monomer sequence (M)_x;

n is a number from 1 to 20; and

c) optionally water or/and one or more organic solvents.

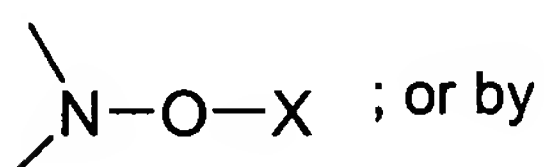
2. **(original)** A coating composition according to claim 1 comprising
a2) a thermally cross linking film forming binder resin or binder resins; or
a3) a radiation curable film forming binder resin or binder resins.

3. **(original)** A coating composition according to claim 1 comprising
a2) a thermally cross linking film forming binder resin or binder resins.

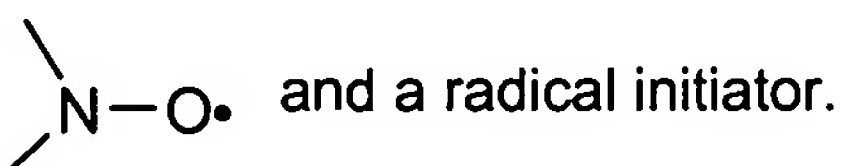
4. **(original)** A coating composition according to claim 1 comprising
a2) a thermally cross linking film forming binder resin or binder resins without water and organic solvent, which is in the form of a solid powder.

5. **(original)** A coating composition according to claim 1 wherein the polymer or copolymer levelling agent of formula (I), is obtained by

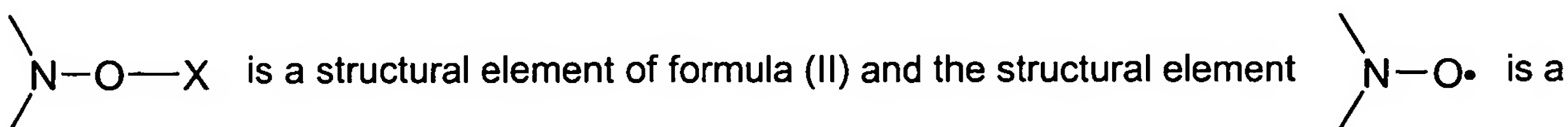
b1) polymerization in the presence of an alkoxyamine initiator/regulator having the structural element



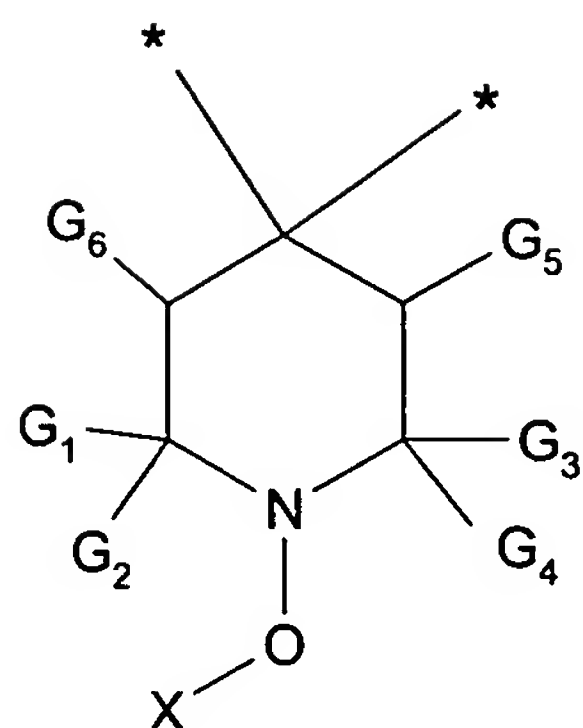
b2) polymerization in the presence of a stable nitroxyl free radical having the structural element



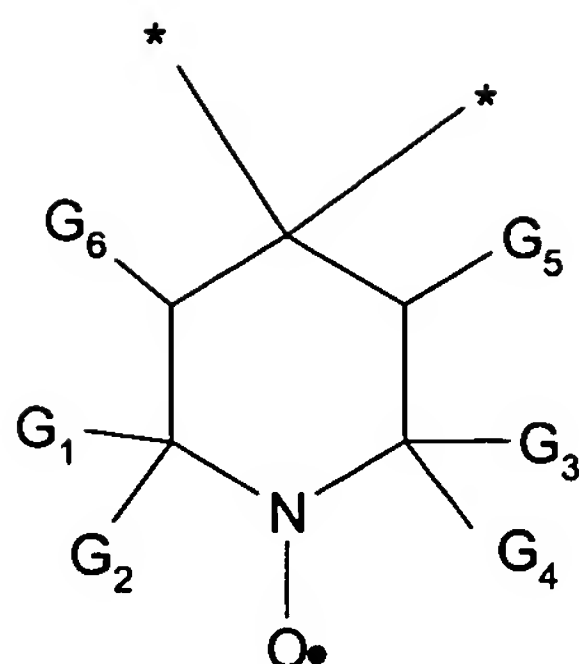
6. **(original)** A coating composition according to claim 5 wherein the structural element



structural element of formula (II')



(II),



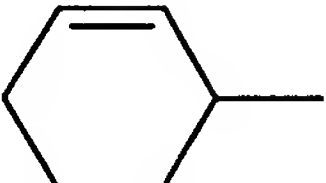
(II'),

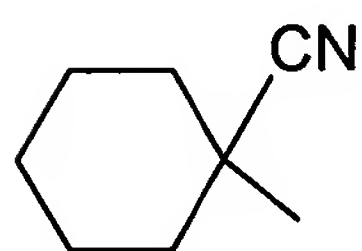
wherein

G_1, G_2, G_3, G_4 are independently C_1 - C_6 alkyl or G_1 and G_2 or G_3 and G_4 , or G_1 and G_2 and G_3 and G_4 together form a C_5 - C_{12} cycloalkyl group;

G_5, G_6 independently are H, C_1 - C_{18} alkyl, phenyl, naphthyl or a group $COOC_1$ - C_{18} alkyl;

X is selected from the group consisting of

- CH_2 -phenyl, CH_3CH -phenyl, $(CH_3)_2C$ -phenyl, $(C_5$ - C_6 cycloalkyl) $_2CCN$, $(CH_3)_2CCN$, ,



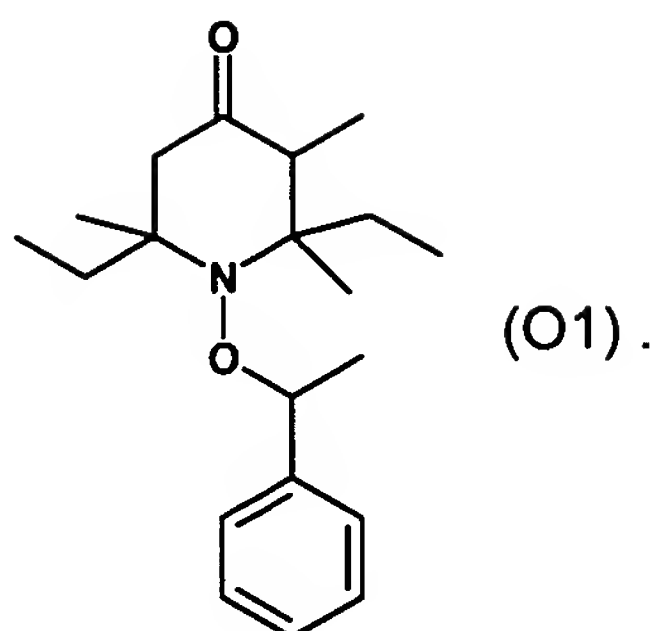
, $-CH_2CH=CH_2$, $CH_3CH-CH=CH_2$ (C_1 - C_4 alkyl) $CR_{20}-C(O)$ -phenyl, (C_1 - C_4)alkyl- $CR_{20}-$

$C(O)$ -(C_1 - C_4)alkoxy, (C_1 - C_4)alkyl- $CR_{20}-C(O)$ -(C_1 - C_4)alkyl, (C_1 - C_4)alkyl- $CR_{20}-C(O)$ -N-di(C_1 - C_4)alkyl, (C_1 - C_4)alkyl- $CR_{20}-C(O)$ -NH(C_1 - C_4)alkyl, (C_1 - C_4)alkyl- $CR_{20}-C(O)$ - NH_2 , wherein

R_{20} is hydrogen or (C_1 - C_4)alkyl and

* denotes a valence.

7. (original) A coating composition according to claim 6 wherein the structural element of formula (II) is a compound of formula (O1)



8. **(original)** A coating composition according to claim 1 wherein the levelling agent, component b), has a polydispersity of between 1.0 and 2.0.

9. **(original)** A coating composition according to claim 1 wherein the levelling agent, component b), has a glass transition temperature between 20° C and 200° C.

10. **(currently amended)** A coating composition according to claim 1 wherein the levelling agent, component b), is composed of at least 30 % by weight of tert[[]]-butylacrylate and/or tert[[]]-butylmethacrylate, based on the weight of total monomers.

11. **(currently amended)** A coating composition according to claim 1 wherein the levelling agent, component b), is a linear polymer or copolymer, where[[]] in formula (I) n is 1.

12. **(original)** A coating composition according to claim 1 wherein in formula (I), component b), y is 1.

13. **(original)** A coating composition according to claim 1 wherein the levelling agent, component b), has a molecular weight of between 3000 to 50000 g/mol (Dalton).

14. (currently amended) A coating composition according to claim 1 wherein the levelling agent, component b), is composed of at least 30 % by weight of tert[[.]]-butylacrylate and/or tert[[.]]-butylmethacrylate, and 0.5 to 50 % of a functional monomer which is selected from the group consisting of acrylic acid, methacrylic acid, acrylic acid (C₁-C₆)hydroxyalkyl esters, methacrylic acid (C₁-C₆)hydroxyalkyl esters, acrylic acid (C₁-C₆)alkyl esters and methacrylic acid (C₁-C₆)alkyl esters which are substituted by amino, (C₁-C₆)alkylamino, (C₁-C₆)dialkylamino, epoxy, fluoro, perfluoro or siloxane groups.

15. (currently amended) A coating composition according to claim 1 wherein the levelling agent, component b), is composed of at least 50 % by weight of tert[[.]]-butylacrylate and/or tert[[.]]-butylmethacrylate and is a solid at room temperature.

16. (original) A coating composition according to claim 1 wherein the levelling agent, component b), is present in an amount of 0.1 to 15% by weight, based on the weight of the film forming binder resin or resins, component a).

17. (original) A process for improving the levelling of a coating composition according to claim 1, which process comprises the steps
applying the coating composition to a substrate and exposing it to thermal energy or electromagnetic radiation in order to obtain a homogenous solid coating.

18. (canceled)

19. (currently amended) A coating composition comprising
a1) a physically drying film forming binder resin or resins;
a2) a thermally cross linking film forming binder resin or binder resins;
a3) a radiation curable film forming binder resin or binder resins;

a4) an autoxidatively drying film forming binder resin or resins; or
a5) a combination of binder resins with at least two different crosslinking ~~mechanisms~~mechanisms selected from a1), a2), a3) or a4);

b) a polymer or copolymer levelling agent of formula (X), prepared by atom transfer radical polymerisation

$$\text{In}-[(\text{M})_x-(\text{E})_y]_n \quad (\text{X})$$

wherein

In is the initiator fragment starting the polymerisation reaction;

M is at least one monomer selected from the group consisting of acrylic acid, methacrylic acid, acrylic acid (C₁-C₂₂)alkyl esters, acrylic acid (C₁-C₂₂)hydroxyalkyl esters, methacrylic acid (C₁-C₂₂)alkyl esters, methacrylic acid (C₁-C₂₂)hydroxyalkyl esters, acrylic acid (C₁-C₂₂)alkyl esters or methacrylic acid (C₁-C₂₂)alkyl esters which are substituted by amino, (C₁-C₂₂)alkylamino, (C₁-C₂₂)dialkylamino, -SO₃H, epoxy, fluoro, perfluoro or siloxane groups, styrene, substituted styrene, acrylamide and methacrylamide, N-mono(C₁-C₂₂)alkyl acrylamide, N,N-di(C₁-C₂₂)alkyl acrylamide, and a multifunctional monomer with two or more ethylenically unsaturated bonds;

with the proviso that the amount of tert[[.]]-butylacrylate is more than 30 % by weight, based on the weight of the total monomer mixture;

E is Cl, Br or a group introduced by nucleophilic substitution of Cl or Br;

x is the total number of monomer units, which is a number between 5 and 5000;

y is a number 1 or greater than 1 indicating the average number of end groups E attached to the monomer sequence (M)_x;

n is a number from 1 to 20; and

c) optionally water or/and one or more organic solvents.

20. (canceled)